

Claims

1. A protein of the following (A) or (B):

(A) a protein comprising the amino acid sequence shown in SEQ ID NO: 2; or

5 (B) a protein comprising an amino acid sequence derived from the amino acid sequence shown in SEQ ID NO: 2 by substitution, deletion, insertion, addition, or inversion of 1 or several amino acids and having a growth-promoting function.

2. A DNA, which encodes the following protein (A) or (B):

(A) a protein comprising the amino acid sequence shown in SEQ ID NO: 2; or

10 (B) a protein comprising an amino acid sequence derived from the amino acid sequence shown in SEQ ID NO: 2 by substitution, deletion, insertion, addition, or inversion of 1 or several amino acids and having a growth-promoting function.

3. A DNA of the following (A), (B), or (C):

(A) a DNA comprising the nucleotide sequence of nucleotide Nos. 180 to 1376 in the nucleotide sequence shown in SEQ ID NO: 1;

15 (B) a DNA being capable of hybridizing under stringent conditions to a DNA consisting of a sequence complementary to the nucleotide sequence of nucleotide Nos. 180 to 1376 in the nucleotide sequence shown in SEQ ID NO: 1, and encoding a protein having a growth-promoting function; or

(C) a DNA being capable of hybridizing under stringent conditions to a DNA
20 consisting of a nucleotide sequence that is produced from a part of the nucleotide sequence of nucleotide Nos. 180 to 1376 in the nucleotide sequence shown in SEQ ID NO: 1, having a function as a primer or a probe, and encoding a protein having a growth-promoting function.

4. A recombinant vector, which comprises the DNA according to claim
25 2 or 3.

5. A transformant, which is transformed with the recombinant vector according to claim 4.

6. A microorganism having an enhanced growth-promoting function, wherein the number of copies of the DNA according to claim 2 or 3 is amplified within

a cell.

7. The microorganism according to claim 6, which is an acetic acid bacterium belonging to the genus *Acetobacter* or the genus *Gluconacetobacter*.

8. A method for producing vinegar, which comprises culturing the
5 microorganism according to claim 6 or 7 in a medium containing alcohol and causing the microorganism to generate and accumulate acetic acid in the medium.

9. Vinegar containing acetic acid at a high concentration, which is obtained by the method according to claim 8.